

Fig. 1

Prior Art

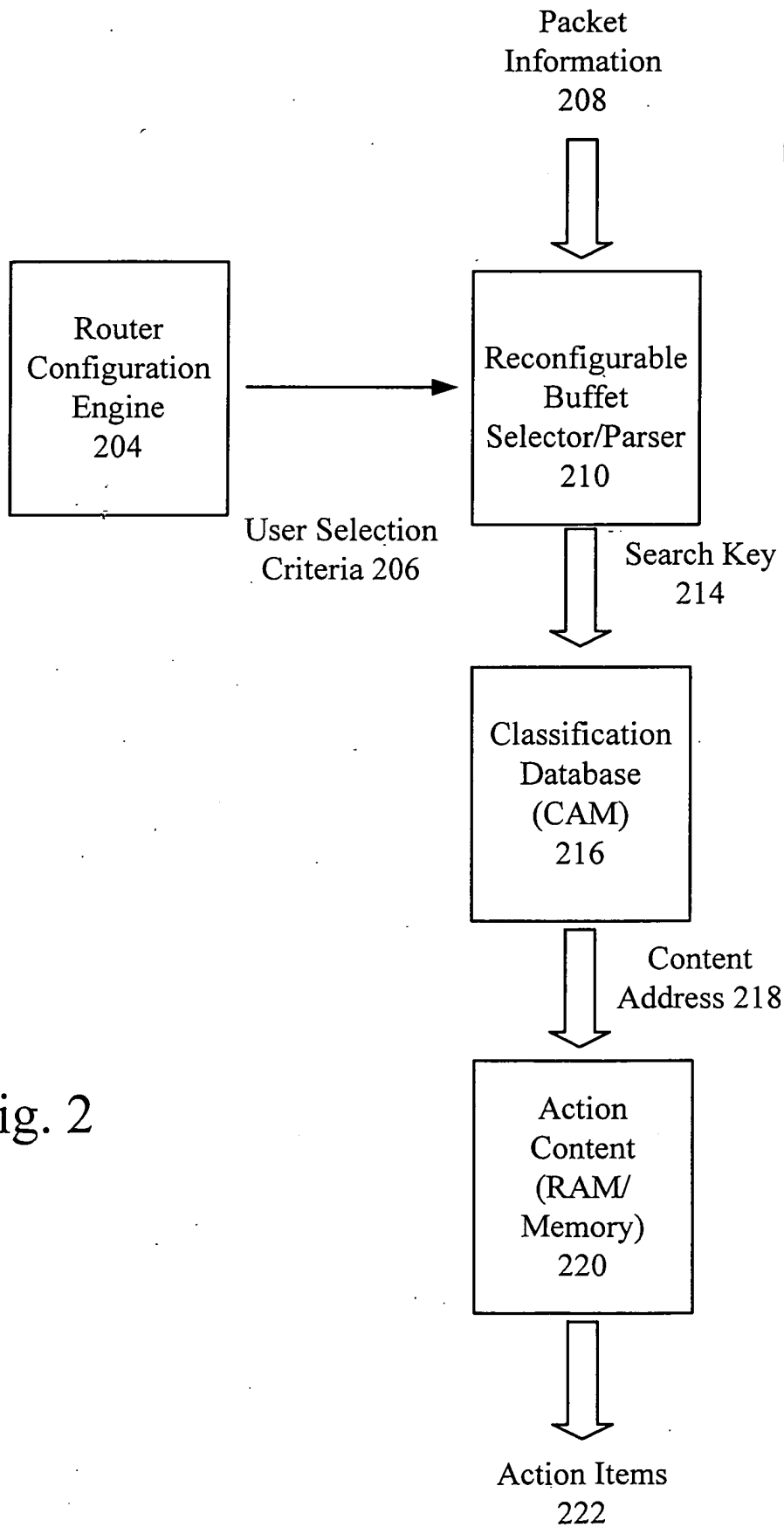


Fig. 2

TOP SECRET

[illegible]

Fig. 4a

| Packet Types      | Field Name              | Bits | Total Bits | Description               |
|-------------------|-------------------------|------|------------|---------------------------|
| Basic Layer 2     |                         |      |            |                           |
|                   | Destination Mac Address | 48   |            | Destination Mac Address   |
|                   | Source Mac Address      | 48   |            | Source Mac address        |
|                   |                         |      | 96         |                           |
| Basic IP Layer 3  |                         |      |            |                           |
|                   | Source IP               | 32   |            | Source IP address         |
|                   | Destination IP          | 32   |            | Destination IP address    |
|                   |                         |      | 64         |                           |
| Basic IPX Layer 3 |                         |      |            |                           |
|                   | Destination Network     | 32   |            | Destination Network       |
|                   | Destination Node        | 48   |            | Destination Node          |
|                   | Destination Network     | 32   |            | Destination Network       |
|                   | Destination Node        | 48   |            | Destination Node          |
|                   |                         |      | 160        |                           |
| Basic Layer 4     |                         |      |            |                           |
|                   | Source IP               | 32   |            | Source IP address         |
|                   | Destination IP          | 32   |            | Destination IP address    |
|                   | Protocol Type           | 8    |            | Protocol type             |
|                   | Source Port             | 16   |            | Source TCP/UDP ports      |
|                   | Destination Port        | 16   |            | Destination TCP/UDP ports |
|                   |                         |      | 104        |                           |
| DiffServ-BA       |                         |      |            |                           |
|                   | DSCP                    | 6    |            | DSCP value                |
|                   |                         |      | 6          |                           |
| DiffServ-MF       |                         |      |            |                           |
|                   | Source IP               | 32   |            | Source IP address         |
|                   | Destination IP          | 32   |            | Destination IP address    |
|                   | Protocol Type           | 8    |            | Protocol type             |
|                   | Source Port             | 16   |            | Source TCP/UDP ports      |
|                   | Destination Port        | 16   |            | Destination TCP/UDP ports |
|                   | DSCP                    | 6    |            | DSCP value                |
|                   |                         |      | 110        |                           |

4001.10-4335260

Fig. 4b

| Packet Types               | Field Name                                      | Bits | Total Bits | Description                                     |
|----------------------------|---|------|------------|---|
| Web switching              |   |      |            |   |
|                            | Source IP                                       | 32   |            | Source IP address                               |
|                            | Destination IP                                  | 32   |            | Destination IP address                          |
|                            | Protocol Type                                   | 8    |            | Protocol type                                   |
|                            | Source Port                                     | 16   |            | Source TCP/UDP ports                            |
|                            | Destination Port                                | 16   |            | Destination TCP/UDP ports                       |
|                            | TCP flag  | 6    |            | Flag bits in TCP header                         |
|                            |   |      | 110        |   |
| IP Filtering & Layer 2 QOS |   |      |            |   |
|                            | Destination Mac Address                         | 48   |            | Destination Mac Address                         |
|                            | Source Mac Address                              | 48   |            | Source Mac address                              |
|                            | L2_priority                                     | 3    |            | 802.1p user priority                            |
|                            | Destination IP                                  | 32   |            | Destination IP address                          |
|                            |   |      | 131        |   |
| IP Layer 2-3 QOS           |   |      |            |   |
|                            | Source IP                                       | 32   |            | Source IP address                               |
|                            | Destination IP                                  | 32   |            | Destination IP address                          |
|                            | DSCP  | 6    |            | DSCP value                                      |
|                            | L2_priority                                     | 3    |            | 802.1p user priority                            |
|                            | Destination Mac Address (Or Source Mac Address) | 48   |            | Destination Mac address (or Source Mac Address) |
|                            |   |      | 121        |   |
| IP Layer 2-4 QOS           |   |      |            |   |
|                            | Source IP                                       | 32   |            | Source IP address                               |
|                            | Destination IP                                  | 32   |            | Destination IP address                          |
|                            | Protocol Type                                   | 8    |            | Protocol type                                   |
|                            | Source Port                                     | 16   |            | Source TCP/UDP ports                            |
|                            | Destination Port                                | 16   |            | Destination TCP/UDP ports                       |
|                            | DSCP  | 6    |            | DSCP value                                      |
|                            | L2_priority                                     | 3    |            | 802.1p user priority                            |
|                            |   |      | 113        |   |

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Fig. 5

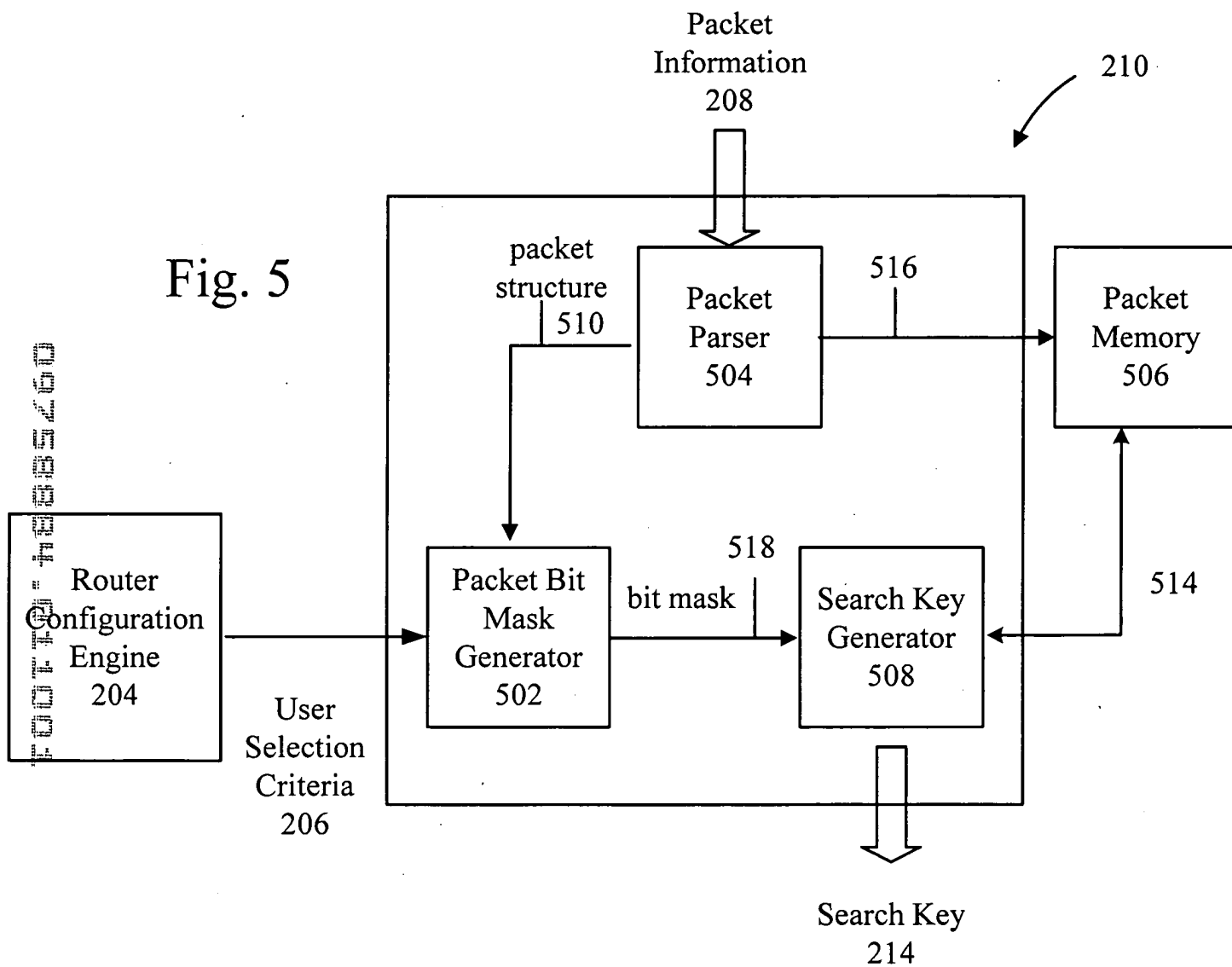


Fig. 6

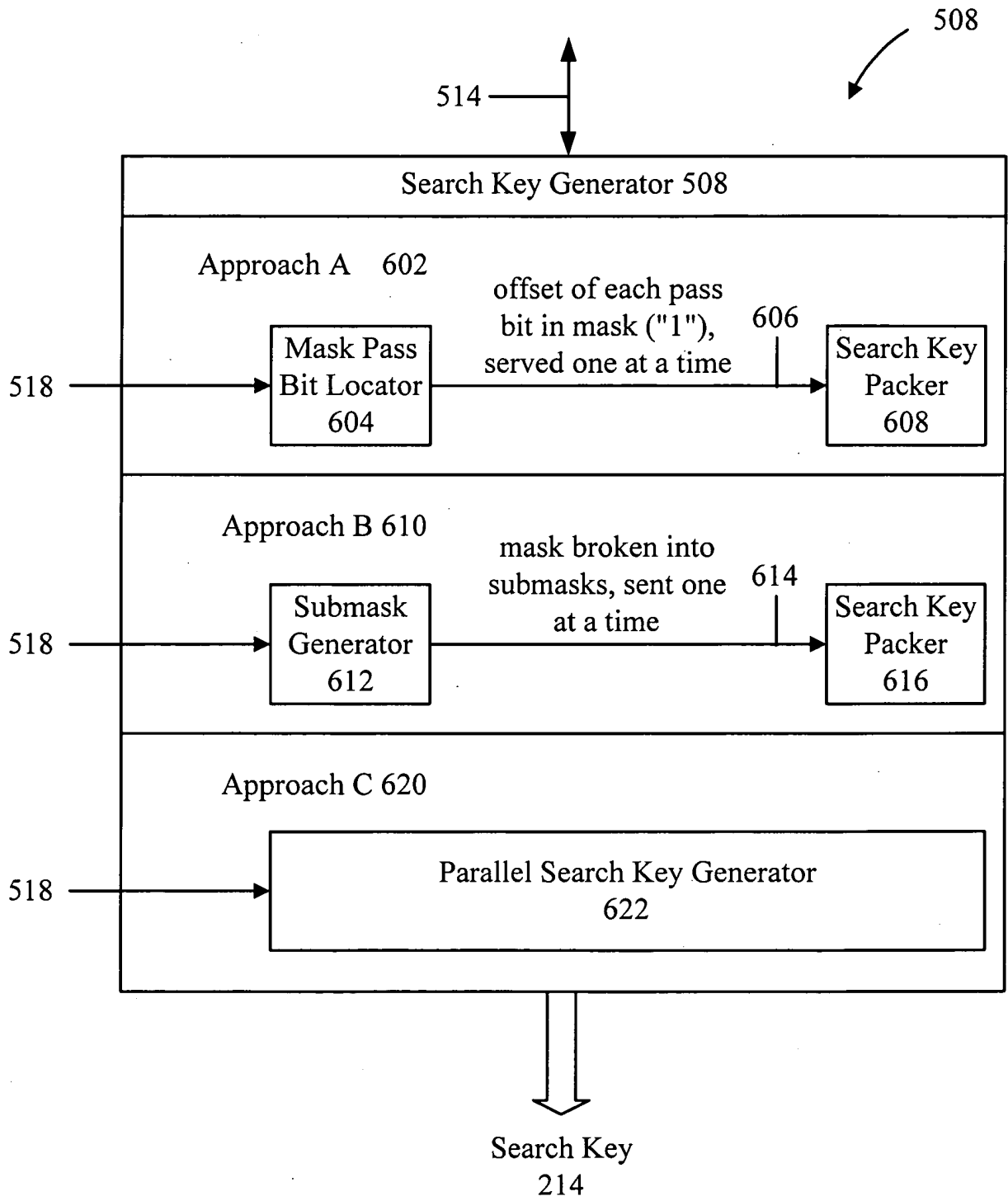
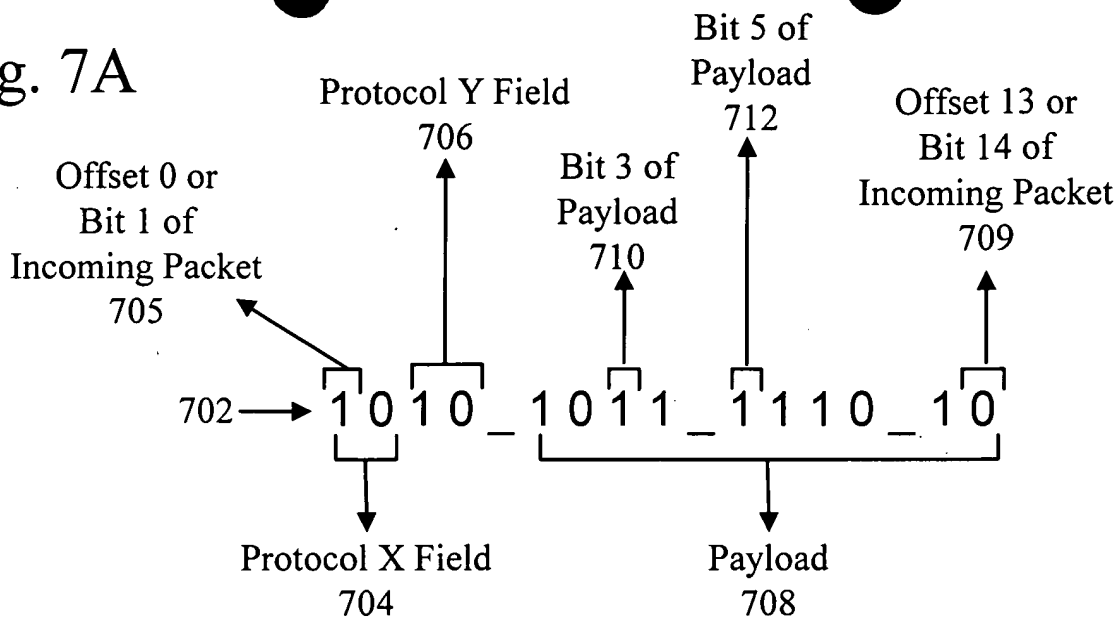


Fig. 7A



714 → 0 0 1 1 \_ 0 0 1 0 \_ 1 0 0 0 \_ 0 0

716 → 1 0 1 1

Fig. 7B

1: Incoming packet passes through the packet parser into the packet memory. Concurrently, the packet structure information is sent to the packet bit mask generator.

2: The classification or the selection criteria and the packet structure information are input into the packet bit mask generator, which block outputs the bit mask 0011\_0010\_1000\_00.

3: One clock cycle at a time, the mask bit locator outputs the offset values 2, 3, 6, 8.

4: Offset 2 reads a "1" from memory, offset 3 reads a "0", offset 6 reads a "1", and offset 8 reads a "1"

5: The search key packer packs or collects these bits into the search key "1011".



Fig. 8

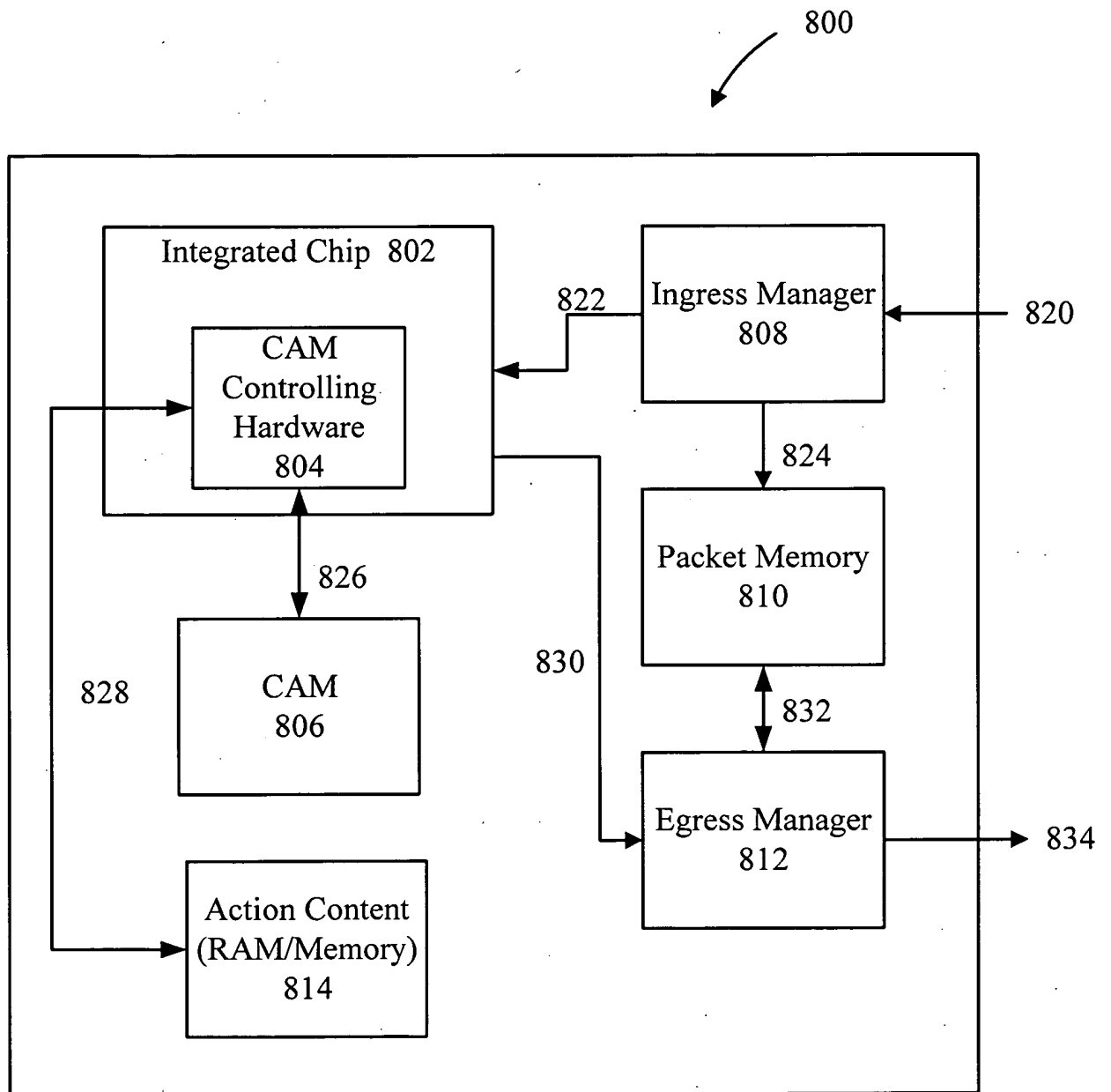


Fig. 9

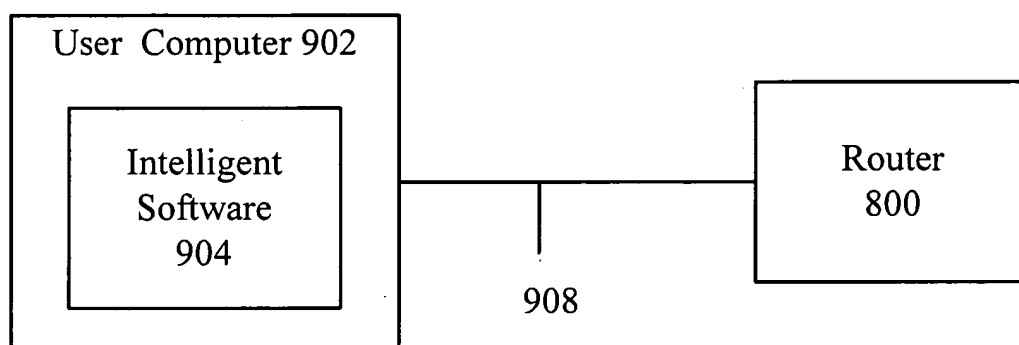


FIG. 9

Fig. 10

